# ABSTRACT BOOK

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**PW123 Biotechnology for art conservation: Microbiological characterization of public outdoor sculptures**

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**Background:** Microorganisms growing on art objects and cultural heritage can have a significant damaging impact on its structure and aesthetical characteristics, contributing to its deterioration and loss of value. Particularly, public outdoor sculptures are very susceptible to biodeterioration due to exposure to environmental elements, which accelerate the favorable conditions for the colonization of degrading microorganisms. Therefore, an assessment of the microbial contamination of outdoor sculptures is fundamental to understand the biodegradation of these cultural objects and to develop innovative solutions for its preventive conservation.

**Objectives:** the aim of this work was to characterize the surface microbiome of selected outdoor stone sculptures using non-invasive sampling techniques. The identification of the main groups of bacteria and fungi thriving on the surface of the sculptures will allow us to design appropriate antimicrobial coatings for protection and preservation of stone sculptures against microbial degradation.

**Methods:** samples from stone sculptures were collected using swabs and a protocol was used to eliminate debris and prepare the samples for further analysis. Flow cytometry was used for quantification of microorganisms and determination of general cell viability. Identification of culturable and unculturable microorganisms was done by sequencing the V3-V4 and ITS2 regions of bacterial and fungal populations.

**Results:** the results allowed us to identify and quantify the main groups of microorganisms present on the surface of the sculptures, as well as to identify the regions within each sculpture with higher microbial colonization. This microbial characterization will help us design suitable antimicrobial coatings for preventive conservation of stone sculptures.